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Sommario/riassunto	Previously, the chemical and mechanical deterioration of polyaramid and polybenzimidazole-based protective clothing fabrics that resulted from concurrent thermal, moisture, and simulated sunlight exposure were quantified. This manuscript discusses the individual impacts of ultraviolet (UV) light irradiation at ambient conditions and moisture and elevated temperature in the absence of irradiation on the performance properties of outer shell (OS) fabrics used in firefighters' turnout gear. The mechanical properties which most often determine the protective performance of firefighters' turnout gear, including unidirectional stretching, tear resistance, and elastic properties, were tested before and after an accelerated weathering process. To assess and compare the protective performance of outer shell fabric samples against UV irradiation, the UV protection factor (UPF) was calculated. Attenuated Total Reflectance-Fourier Transform Infrared Spectroscopy analysis was used to elucidate the chemical changes induced by the weathering process. The data suggests that the deterioration in the physical properties of polyaramids and polybenzimidazoles are mainly due to

photo-oxidative reactions, which result in chemical and mechanical deterioration of the fabrics. However, the UV exposure has a lesser detrimental effect on the UPF value.
